Curriculum Overview

Curriculum Leader: Mr. Smith Subject: Science – Physics Year: 7

Year 7 Curriculum:

Autumn Term:

Forces and their effects

All pupils will develop their core substantive knowledge focusing on contact and non-contact forces and examples including Friction, Tension, Compression and Weight. All pupils will look at the effects of balanced and unbalanced forces on the motion of objects. All pupils will know the idea of resultant force and equilibrium and state how they move in each situation. All pupils will be able describe what happens to springs when force is added to them. All pupils will be able to distinguish between mass and weight and calculate the weight of an object from its mass on Earth. They will use secondary data to calculate weight on different planets. All pupils will learn about the link between force and pressure, allowing all pupils to perform pressure calculations and use the idea of pressure to explain everyday situations. All pupils will learn how forces affect the speed of an object and will both calculate speed and interpret distance-time graphs.

All pupils will develop core disciplinary knowledge in carrying out experiments, recording data and presenting observations and data using Line Graphs.

Spring/Summer Term:

Energy

All pupils will build on prior and further develop their core substantive knowledge of energy in the context of energy stores, transfers and energy resources.

All pupils will learn the major energy stores, thermal transfers mechanisms qualitatively and the concept of work quantitatively.

All pupils will develop their core substantive knowledge of fuel uses and costs. They will learn what renewable and non-renewable fuels are and how to work out how much we pay for energy.

All pupils will develop explicit core disciplinary knowledge in writing a plan and the analysis skills of numeracy in calculating work and energy costs.

Links to National Curriculum

Our Year 7 Science Physics curriculum is carefully sequenced to build on the KS2 knowledge of **Earth and space**, **Forces** and **Sound** by addressing the KS3 concepts of **Motion and Forces, Waves** and **Space physics.**

The fundamental concepts are continually used and built upon throughout the year.

The concept of **waves** allows all pupils to learn about **Observed waves, Sound waves** and **Light**

The concept of **Forces and motion** allows all pupils to learn about **Forces, Balanced forces** and **Space Physics.**

Our Year 7 Science curriculum ensures that over the year and all three sciences all pupils will learn the fundamentals of each core disciplinary knowledge skills for full coverage of **working scientifically**.

In the Year 7 Physics curriculum all pupils will learn the **experimental and investigation** skills of carrying out a practical and recording data and the **analysis and evaluation** skills of drawing line graphs and bar charts, analysing data tables and evaluating an investigation.

Knowledge and understanding of this curriculum will be assessed by:

Embedded within the curriculum, a range of high-quality assessment techniques will be deployed at the point of learning to ensure that all pupils are acquiring the core substantive knowledge, identifying gaps, and addressing misconceptions.

Sequentially throughout the year pupils will be assessed on their retention of the core substantive knowledge, further identifying gaps and misconceptions which will be addressed through a targeted intervention.

Pupils disciplinary core knowledge will be assessed systematically throughout the year, using a variety of bespoke practical scenarios to allow them to demonstrate fundamental core skills required within science and clear guidance of the next steps to progression in each area.

Powerful Knowledge/Cultural Capital Opportunities

The powerful knowledge of the Forces and Space Physics will allow our pupils to understand everyday phenomenon such as the seasons, day length and gravity's role on this planet. The powerful knowledge of waves will allow our pupils to know the structure of our eyes and ears and how pitch and loudness of sound are linked to their wave.

To ensure pupils are curious and questioning about the world around them we equip pupils to make informed decisions and their ability to plan investigations, collect and analyse evidence is vital to take their seat at the table of science-based society.